ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

DATE: June 13, 1980

TO: Bob Wengrow, Rockford Regional Manager

FROM: Rauf Piskin

SUBJECT: Winnebago County - 20103001 - Rockford/People's Avenue

Information that you asked in your memo of June 13 is outlined below.

As you know landfill leachate is generated by percolation of water, either precipitation or ground water, through refuse. When leachate migrates out of a landfill, leachate will carry away some of the soluble and suspended materials from refuse. However, quality of leachate will become less strong as years go by.

A laboratory study made on limited scale model suggests that approximately 75 percent of the soluble inorganic chemicals in refuse was leached out over five years. Another study conducted under controlled conditions by the USEPA in Cincinnati, Ohio indicates that strong leachate is produced still after a six year period (study is continuing).

Dr. Pohland of Georgia Institute of Technology indicated in one of his articles that leaching of municipal waste would take about 40 years.

Field observations and studies indicate that the quality of leachate is not acceptable for longtime. A study that we made at Macomb/City landfill showed unacceptable quality of leachate from landfill trenches. This landfill was closed in 1970 and we made the study in 1978. A similar situation was found in Danville/City (H&L #1) landfill. The site closed in early 1970's, today leachate is still generated as springs, flows, and seeps, and its quality is very strong.

Few examples from the literature:
A site (dump?) in Krefeld, Germany, accepted 650,000 yd^3 refuse daily between 1913 and 1929. The site was a gravel pit. Nine years after closure, high salt and hardness concentration were found in wells located one mile down stream. Eventually, wells five miles away were seriously affected. The problem began to disappear about 18 years later. In another case, in Shirrhoff, Germany where ash and refuse dumped into an empty sand pit, pollution of ground water observed in wells 2000 feet downstream some 15 years later. Another example, in Kansas City, Missouri, a landfill accepted industrial refuse from plastic operations, two fiberglass operations, oil refinery and auto assembly plant. The landfill operation was closed in 1956 and it reopened in 1969. When the site reopened, it was found that leachate was rich in hydrocarbons, phenolic resins and other organic products.

The above examples suggest that leaching of refuse will continue for long time. Because the Rockford/People's Avenue site was closed in 1972, I personally feel that this site will continue to generate leachate for several years to come. If a proper final cover is applied, infiltration of precipitation into the landfill would be decreased. This in turn, would reduce volume of leachate generated for a given time period, resulting less pollution of the ground water.

cc: Division Files